WHAT IS CLAIMED IS:

1. A method for forming an isolation film in a silicon substrate, which comprises the steps of:

successively depositing a pad oxide film, a pad nitride film and a poly-silicon film on a silicon substrate;

patterning the poly-silicon film, the pad nitride film and the pad oxide film to expose a portion of the substrate, which correspond to a field region of the substrate;

etching the exposed portion of the substrate to form a trench;

depositing an HDP-oxide film on the resulting substrate to the same thickness as the sum of the thickness of the deposited films and the depth of the trench in such a manner as to fill the trench;

forming a reverse mask on the HDP-oxide film, which covers the field region and a portion of an active region, which is adjacent to the field region and extends inward from the edge of the active region by a given distance;

etching an exposed portion of the HDP-oxide film formed on the active region using the reverse mask as an etch barrier;

removing the reverse mask;

subjecting the HDP-oxide film and the poly-silicon

film to chemical mechanical polishing (CMP); and

removing the pad nitride film.

2. The method of Claim 1, wherein the reverse mask is formed in such a manner as to cover the field region and a portion of the active region which is adjacent to the field region and extends inward from the edge of the active region by a distance of 0.04-0.05 μm.

3. The method of Claim 1, wherein the step of etching a portion of the HDP-oxide film formed on the active region is carried out using at least one gas selected from the group consisting of C_xF_y, O_2, Ar and CH_xF_y.

4. The method of Claim 1, wherein the step of etching a portion of the HDP-oxide film formed on the active region is carried out using the poly-silicon film as an etch stopper, at an etch selectivity of the oxide film to the poly-silicon film greater than 100:1.

5. The method of Claim 1, wherein the step of subjecting the HDP-oxide film and the poly-silicon film to CMP is carried out in such a manner that the surface of the pad nitride film is removed to a thickness of about 100-200

Å after the poly-silicon film was completely removed.

6. The method of Claim 1, wherein the step of removing the pad nitride film is carried out using a mixed solution of nitric acid (HNO_3) and phosphoric acid (H_3PO_4).